UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,792	06/24/2003	Thomas A. Maufer	NVDA P000804	3473

26291 7590 12/20/2007
PATTERSON & SHERIDAN L.L.P.
595 SHREWSBURY AVE, STE 100
FIRST FLOOR
SHREWSBURY, NJ 07702

EXAMINER	
MOORE JR, MICHAEL J	

ART UNIT	PAPER NUMBER
2619	

MAIL DATE	DELIVERY MODE
12/20/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/603,792	MAUFER ET AL.	
	Examiner	Art Unit	
	Michael J. Moore, Jr.	2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 October 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 3-22 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 3-22 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 10/26/07 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims **15-17** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Regarding *amended* claims **15-17**, these claims are now directed to "a signal *per se*" with no concrete, tangible result. Specifically, "a computer readable medium" is currently defined in the specification on page 48, paragraph 150, to be "information conveyed to a computer by a communications medium" such as a downloaded information signal. A suggestion to obviate this issue would be to remove this particular portion of paragraph 150 from the specification.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims **3, 4, and 7-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Robotham et al. (U.S. 6,775,293) (hereinafter "Robotham") in view of Natanson et al. (U.S. 6,611,525) (hereinafter "Natanson").

Regarding claims **3 and 15**, *Robotham* teaches the storage of received data units (packets) in buffer 20 (memory) coupled to transmission block 50 (network interface circuitry) of Figure 1 as spoken of on column 3, lines 36-40.

Robotham also teaches the incrementing of count values of count table 40 (counter) as received data units (packets) are stored in the buffer 20 as spoken of on column 2, lines 45-48.

Robotham also teaches the referencing (checking) of a context table (connection table) upon reception of data units (packets) as spoken of on column 2, lines 43-45.

Robotham also teaches transmission block 50 that determines stream identifiers (packet processing) corresponding to fetched data units (packets) as spoken of on column 3, lines 45-49.

Robotham also teaches transmission block 50 that transmits (forwards) the fetched data units (packets) as transmitted data units as spoken of on column 3, lines 56-58.

Robotham also teaches the dequeuing of data from the buffer (clearing the buffer) for forwarding as spoken of on column 2, lines 49-50.

Robotham also teaches the decrementing of count values of count table 40 (counter) as data units are retrieved from the buffer and transmitted as spoken of on column 3, lines 62-64.

Robotham does not teach that "responsive to non-existence of the connection table entry, sending the packets to network interface software for preparing the packets for the network interface circuitry, the network interface software for generating an address resolution table (ART) index for an address resolution table entry that stores a media access control (MAC) address and MAC layer attributes" and "building the connection table entry, including the ART index".

However, *Natanson* teaches a method of MAC address learning, where a hash table 76 is created, and where new entries are added (responsive to non-existence of entry) by adding the new MAC source address that functions as an index to a corresponding LEC_ID as spoken of on column 15, lines 46-54.

Natanson also teaches how two tables, an LE_ARP table having MAC (index) to ATM address mappings, and an LEC_ID table, having ATM address (index) to LEC_ID mappings, are used in conjunction to retrieve a particular LEC_ID corresponding to a MAC address (index) as spoken of on column 15, lines 55-60.

At the time of the invention, it would have been obvious to someone of ordinary skill in the art, given these references, to combine the MAC address index teachings of *Natanson* with the context table teachings of *Robotham* in order to allow for the efficient processing of new flows of packets originating from end users using MAC enabled (e.g. Ethernet, 802.11) devices.

Regarding claim **4**, *Robotham* further teaches the storage of received data units (packets) in buffer 20 (local memory) as spoken of on column 3, lines 36-40.

Regarding claim **7**, *Robotham* further teaches that the count values (total count signal) in the count table 40 are adjusted to always reflect the current state (whether packets have been partially processed) of the buffer 20 as spoken of on column 3, lines 62-66.

Regarding claims **8 and 16**, *Robotham* further teaches transmission block 50 that utilizes the stream identifier (do not use flag) to retrieve the set of independent group identifiers corresponding to the particular stream from the context table 30 as spoken of on column 3, lines 50-53.

Regarding claims **9 and 17**, *Robotham* further teaches transmission block 50 (having network interface software) that determines stream identifiers (packet

processing) corresponding to fetched data units (packets) as spoken of on column 3, lines 45-49.

Regarding claim **10**, *Robotham* further teaches transmission block 50 (network interface circuitry) that determines stream identifiers (packet processing) corresponding to fetched data units (packets) as spoken of on column 3, lines 45-49.

Regarding claim **11**, *Robotham* teaches the buffering circuit 100 (apparatus) as shown in Figure 1.

Robotham also teaches the storage of received data units (packets) by reception block 10 (means) in buffer 20 (memory) coupled (accessible) to transmission block 50 (network interface circuitry) of Figure 1 as spoken of on column 3, lines 36-40.

Robotham also teaches the incrementing of count values of count table 40 (counter) by reception block 10 (means) as received data units (packets) are stored in the buffer 20 as spoken of on column 2, lines 45-48.

Robotham also teaches the referencing (checking) of a context table (connection table) by reception block 10 (means) upon reception of data units (packets) as spoken of on column 2, lines 43-45.

Robotham also teaches transmission block 50 that determines stream identifiers (packet processing) corresponding to fetched data units (packets) as spoken of on column 3, lines 45-49.

Robotham also teaches transmission block 50 (means) that transmits (forwards) the fetched data units (packets) as transmitted data units as spoken of on column 3, lines 56-58.

Robotham also teaches the dequeuing of data (clearing the buffer) from the buffer by transmission block 50 (means) for forwarding as spoken of on column 2, lines 49-50.

Robotham also teaches the decrementing of count values of count table 40 (counter) by transmission block 50 (means) as data units are retrieved from the buffer and transmitted as spoken of on column 3, lines 62-64.

Robotham does not teach "means for sending the packets to network interface software for preparation for the network interface circuitry responsive to one of non-existence of the connection table entry and a do not use flag", including "means for generating an address resolution table (ART) index for an address resolution table entry that stores a media access control (MAC) address and MAC layer attributes" and "means for building the connection table entry, including the ART index".

However, *Natanson* teaches a method of MAC address learning, where a hash table 76 is created, and where new entries are added (responsive to non-existence of entry) by adding the new MAC source address that functions as an index to a corresponding LEC_ID as spoken of on column 15, lines 46-54.

Natanson also teaches how two tables, an LE_ARP table having MAC (index) to ATM address mappings, and an LEC_ID table, having ATM address (index) to LEC_ID mappings, are used in conjunction to retrieve a particular LEC_ID corresponding to a MAC address (index) as spoken of on column 15, lines 55-60.

At the time of the invention, it would have been obvious to someone of ordinary skill in the art, given these references, to combine the MAC address index teachings of

Natanson with the context table teachings of *Robotham* in order to allow for the efficient processing of new flows of packets originating from end users using MAC enabled (e.g. Ethernet, 802.11) devices.

Regarding claim **12**, *Robotham* further teaches the storage of received data units (packets) in buffer 20 (local memory) as spoken of on column 3, lines 36-40.

Regarding claim **13**, *Robotham* further teaches where count table 40 (counter) is coupled to buffer 20 (memory) as shown in Figure 1.

Regarding claim **14**, *Robotham* further teaches that the count values (total count signal) in the count table 40 are adjusted to always reflect the current state (whether packets have been partially processed) of the buffer 20 as spoken of on column 3, lines 62-66.

Regarding claim **18**, *Robotham* teaches the buffering circuit 100 (system) as shown in Figure 1.

Robotham also teaches congestion monitoring block 60 (central processing unit) as shown in Figure 1.

Robotham also teaches buffer 20 (system memory) coupled to congestion monitoring block 60 (central processing unit) as shown in Figure 1.

Robotham also teaches reception block 10 and transmission block 50 (network interfaces) coupled to buffer 20 (system memory) and congestion monitoring block 60 (central processing unit) as shown in Figure 1.

Robotham teaches the storage of received data units (packets) in buffer 20 (memory) coupled to transmission block 50 (circuitry portion) of Figure 1 as spoken of on column 3, lines 36-40.

Robotham also teaches the incrementing of count values of count table 40 (counter) as received data units (packets) are stored in the buffer 20 as spoken of on column 2, lines 45-48.

Robotham also teaches the referencing (checking) of a context table (connection table) upon reception of data units (packets) as spoken of on column 2, lines 43-45.

Robotham also teaches transmission block 50 that determines stream identifiers (packet processing) corresponding to fetched data units (packets) as spoken of on column 3, lines 45-49.

Robotham also teaches transmission block 50 that transmits (forwards) the fetched data units (packets) as transmitted data units as spoken of on column 3, lines 56-58.

Robotham also teaches the dequeuing of data from the buffer (clearing the buffer) for forwarding as spoken of on column 2, lines 49-50.

Robotham also teaches the decrementing of count values of count table 40 (counter) as data units are retrieved from the buffer and transmitted as spoken of on column 3, lines 62-64.

Robotham does not teach that "responsive to non-existence of the connection table entry, the packets sent to prepare the packets for the network interface circuitry, the software portion configured to generate an address resolution table (ART) index for

an address resolution table entry that stores a media access control (MAC) address and MAC layer attributes" and "build the connection table entry, including the ART index".

However, *Natanson* teaches a method of MAC address learning, where a hash table 76 is created, and where new entries are added (responsive to non-existence of entry) by adding the new MAC source address that functions as an index to a corresponding LEC_ID as spoken of on column 15, lines 46-54.

Natanson also teaches how two tables, an LE_ARP table having MAC (index) to ATM address mappings, and an LEC_ID table, having ATM address (index) to LEC_ID mappings, are used in conjunction to retrieve a particular LEC_ID corresponding to a MAC address (index) as spoken of on column 15, lines 55-60.

At the time of the invention, it would have been obvious to someone of ordinary skill in the art, given these references, to combine the MAC address index teachings of *Natanson* with the context table teachings of *Robotham* in order to allow for the efficient processing of new flows of packets originating from end users using MAC enabled (e.g. Ethernet, 802.11) devices.

Regarding claim **19**, *Robotham* further teaches reception block 10 and transmission block 50 (input/output interfaces) coupled to buffer 20 and congestion monitoring block 60 (central processing unit) as shown in Figure 1.

Regarding claim **20**, *Robotham* further teaches transmission block 50 (circuitry portion) as shown in Figure 1.

Regarding claim **21**, *Robotham* does not teach where "the ART index is computed by hashing the MAC address".

However, *Natanson* teaches a method of MAC address learning, where a hash table 76 is created, and where new entries are added (responsive to non-existence of entry) by adding the new MAC source address that functions as an index (hash) to a corresponding LEC_ID as spoken of on column 15, lines 46-54.

Regarding claim **22**, *Robotham* further teaches the use of stream identifiers (indices) associated with corresponding group identifiers in the context table 30 of Figure 2, that are connection identifiers (based on addresses) such as VCIs or VPIs associated with ATM, IP, MPLS, or frame relay protocols as spoken of on column 3, lines 1-8.

6. Claim **5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Robotham et al. (U.S. 6,775,293) (hereinafter "Robotham") in view of Natanson et al. (U.S. 6,611,525) (hereinafter "Natanson") and in further view of Spinney et al. (U.S. 6,426,943) (hereinafter "Spinney").

Regarding claim **5**, *Robotham* in view of *Natanson* teaches the method of claim **4**. While *Robotham* in view of *Natanson* teaches buffer management of a packet-based system, *Robotham* in view of *Natanson* does not explicitly teach the use of User Datagram Protocol formatted packets.

However, *Spinney* teaches a method of packet flow processing using queues where UDP packets are used as spoken of on column 27, lines 3-26.

At the time of the invention, it would have been obvious to someone of ordinary skill in the art, given these references, to combine the UDP packet teachings of *Spinney*

with the teachings of *Robotham* in view of *Natanson* in order to provide efficient packet processing of UDP packets.

7. Claim **6** is rejected under 35 U.S.C. 103(a) as being unpatentable over Robotham et al. (U.S. 6,775,293) (hereinafter "Robotham") in view of Natanson et al. (U.S. 6,611,525) (hereinafter "Natanson") and in further view of Wei (U.S. 6,560,196).

Regarding claim **6**, *Robotham* in view of *Natanson* teaches the method of claim **4**. While *Robotham* in view of *Natanson* teaches buffer management of a packet-based system, *Robotham* in view of *Natanson* does not explicitly teach the use of Voice over Internet Protocol formatted packets.

However, *Wei* teaches a method of packet flow processing using credit buffers and counters where VoIP packet transmission is supported as spoken of on column 18, lines 50-61.

At the time of the invention, it would have been obvious to someone of ordinary skill in the art, given these references, to combine the VoIP teachings of *Wei* with the teachings of *Robotham* in view of *Natanson* in order to provide efficient packet processing in a VoIP environment.

Response to Arguments

8. Applicant's arguments with respect to *amended* claims **3-20** have been considered but are moot in view of the new ground(s) of rejection provided above.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yang et al. (U.S. 6,424,650) is another reference considered pertinent to this application.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Moore, Jr. whose telephone number is (571) 272-3168. The examiner can normally be reached on Monday-Friday (7:30am - 4:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing F. Chan can be reached at (571) 272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael J. Moore, Jr.
Examiner
Art Unit 2619

mjm MM

12/18/07

WING CHAN
SUPERVISORY PATENT EXAMINER